MINISTRY OF ENVIRONMENT, LANDS AND PARKS
MARINE SALMON FARMING
COMPLIANCE REPORT

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EXECUTIVE SUMMARY

In support of government's Salmon Aquaculture Policy (SAP) framework, the Ministry of Environment, Lands and Parks (MELP) in Year 2000 undertook four initiatives related to the development of performance based standards (PBS) for fish wastes and improving compliance with its legislated mandate.

These initiatives were:

- Requiring the salmon farming industry to supply operational, site characteristic and currents information;
- Requiring the salmon farming industry to implement an environmental monitoring program to determine benthic conditions at or near netpens and to support the development of the PBS;
- Collecting and analyzing sediment samples at 32 farms to serve as an audit of industry's monitoring program and provide additional data to support the development of the PBS;
- Compliance inspections of marine salmon farms.

This report outlines the findings of the compliance inspections as well as industry's overall compliance with the requirements to supply information and undertake an environmental monitoring program. Results of industry and MELP's environmental monitoring programs will be released upon completion of the data analysis.

MELP's mandate addresses a number of activities at fish farms including hazardous materials storage, sewage discharges, refuse, fish wastes and blood, mortalities, wastes from net cleaning, licensing and use of firearms, and licensing the use of water from lakes and streams.

Compliance inspections to address these activities were completed at 124 farms (84 active, 40 inactive or fallow) by MELP conservation officers and Pollution Prevention staff from the Vancouver Island and Lower Mainland regions. Inspections were conducted between July and December 2000, with the majority of inspections completed by October.

The inspections revealed a varying degree of compliance with MELP's legislation. Refuse disposal, feed handling and storage, mortality (mort) storage and disposal met MELP's requirements in most cases.

Sewage disposal, discharge of net cleaning wastes, storage of hazardous products and wastes, discharge of blood water, firearm licensing and predator control authorizations, and licensing the use of water from streams are areas where industry needs to improve compliance with regulatory requirements.

With regards to the "Information Request and Interim Monitoring Program", compliance has been variable. Environmental monitoring (chemical, physical, or video) occurred at the majority of farms during the summer as required. The required information has not been received for 27 farms at the time of the writing of this report. Results of the monitoring have been received by MELP and are presently being analyzed.

Submission of operational and site characteristics information has been slower to come. All companies failed to initially comply with the requirement to submit information on farm operations and site characteristics by June 15, 2000. Warning letters were issued and the non-compliance was documented on all of the company's compliance records. As of

January 2001, information had been received for the majority of farms however, complete information submissions were received for approximately 20% of the farms. Quarterly submission of "Materials Handling Information" outlining feed types and amounts, and the biomass of fish and mortalities have been received for approximately 80% of the farms. Of these, 20% submitted all the required information.

A number of the compliance issues identified in this report can be easily resolved by industry, e.g., preventing wildlife access to morts. Others will require further discussion with industry and the relevant agencies to determine an appropriate resolution, e.g., discharge of blood water. The information in this report will be used to assist the development of upcoming amendments to the Aquaculture Waste Control regulation.

The publication of this report is the first stage in MELP's graduated enforcement approach to resolving non-compliance issues identified in this report. Individual companies will be provided specific information regarding their compliance performance and will be required to provide information on how they have resolved the non-compliance.

Further analysis on a company specific basis will be undertaken to determine whether additional administrative or enforcement action is required. Warning letters will be forwarded to companies where appropriate, and company compliance records will be updated to reflect their current compliance status. Continued non-compliance will be addressed through the application of progressive enforcement actions, i.e., tickets and formal charges.

The BC Salmon Farmers Association (BCSFA) has introduced a Code of Practice that establishes Standard and Best Practices for farm operations. An analysis of the Code has been conducted in relation to the activities covered by MELP's compliance inspections. It is felt that the Code has the potential to develop into an effective tool to assist industry in achieving compliance with regulatory requirements. Based on the findings of the compliance inspections, MELP will be forwarding recommendations to the BCSFA to assist in the development and improvements of the Code.

The following actions are recommended:

- Notify individual companies of specific non-compliance issues and require confirmation when the issue has been resolved, or alternatively a plan to achieve compliance where the non-compliance cannot be resolved within 30 days;
- Initiate investigations for specific non-compliance issues where industry has been previously informed of the need to achieve compliance or where there has been a significant impact upon the environment;
- Consult with industry and Fisheries and Oceans to develop an action plan to assess impacts from net washing operations and to consider remediation options where required;
- Consult with industry and relevant government agencies regarding treatment and disposal options for blood water and disinfectants;
- Consult with industry and relevant government agencies to improve information and data submissions;
- Develop MELP's compliance inspection program for 2001 based upon priorities identified through the inspections conducted in 2000;
- Continue to provide input to the BCSFA regarding their Code and explore opportunities to conduct joint inspections with BCSFA auditors;
- Finalize MELP's compliance strategy addressing MELP's legislated mandate.

BACKGROUND

The Ministry of Environment, Lands & Parks is mandated to manage, protect and conserve all water, land, air, plant life and animal life, having regard to the economic and social benefits they may provide to British Columbia.

With regards to BC's salmon farming industry, this mandate includes regulating the use of pesticides, storage of hazardous materials and special wastes, the discharge of sewage and refuse, managing fish wastes including those resulting from harvesting practices, protection of fish and wildlife species, licensing and use of firearms, and licensing the use of water from streams and lakes.

The salmon farming industry is regulated by a number Acts and their associated regulations administered by MELP including the following:

- *Firearms Act;*
- *Pesticide Control Act;*
- *Waste Management Act;*
- *Water Act;*
- *Wildlife Act.*

A number of initiatives to improve the regulatory framework governing BC's salmon farming industry are presently underway as a result of government's Salmon Aquaculture Review and the subsequent Salmon Aquaculture Policy (SAP) announcement made in 1999. A component of the policy announcement is the development of performance based standards for fish wastes. Improving compliance and enforcement programs is another component of the SAP framework.

To support these initiatives, MELP required industry to provide information relevant to the operation of their fish farms. Industry was also required to undertake an environmental monitoring program designed to evaluate benthic conditions at or near netpens, and to support the development of performance based standards for fish wastes.

To evaluate compliance with MELP's legislation, staff from the Vancouver Island and Lower Mainland Regions conducted 124 inspections at marine salmon farms. The results of these inspections, as well as an analysis of industry's compliance with the request to provide information on farm operations and undertake an environmental monitoring program, are included in this report.

ANALYSIS

During the period between July to December 2000, staff of the Conservation Officer Service and Pollution Prevention Programs, from Regions 1 and 2, inspected 124 fish farm sites. Eighty-four of the sites were actively raising fish at the time of inspection. Forty did not have salmon on site at the time of inspection, being either fallow or inactive. For the purpose of this report, a farm includes both active and fallow or inactive sites.

The Ministry collected information concerning the number of fish and species on site, general housekeeping practices, administrative requirements and compliance with environmental requirements related to MELP's mandate. Specific areas examined were net cleaning, environmental monitoring, hazardous materials and special waste, feed storage and handling, predator prevention, mort handling and disposal, sewage, refuse, fish harvesting and the use of water.

The majority of the fish farm tenures are located in the Quadra Island/Campbell River, Broughton/Port McNeill, and Clayoqout Sound areas. Eighty (80%) percent of the tenures were owned by six companies at the time of inspection.

As noted below, two thirds of the fish farm operations were raising Atlantic Salmon, contributing to 75% of the total fish on site during the inspections. Seven farms were raising more than one species of salmon. Black cod were being raised at two of the farms, and one farm inspected was raising Halibut.

Total Numbers of Fish on Sites at Time of Inspection (2000)

Species	Number of Sites	Number of Fish on Site			TOTAL
		Smolt	Grow out	Brood stock	
Atlantic	61	12,239,830	8,630,627	87,086	**20,957,543**
Chinook	23	2,305,076	2,509,633	7640	**4,822,349**
Coho	7	927,550	18,145	3030	**948,725**
Rainbow Trout	1	0	29,500	0	**29,500**
TOTAL	**92 (84)**	**15,472,456**	**11,187,905**	**97,756**	**26,758,117**

Note: (84) indicates the total number of active sites inspected of which multiple species were being raised at a number of sites.

I. REFUSE STORAGE AND HANDLING

Inspections determined the majority of farms are storing refuse in a manner that prevents the attraction of wildlife and spillage into the environment. Locking devices on totes and containers were observed and measures were in place to protect the refuse from exposure to the elements.

II. REFUSE DISPOSAL

The majority of farms remove their refuse for disposal at approved recycling/disposal facilities. In order to improve upon recycling, sorting of recyclable materials at the farm is recommended. Doing so will facilitate consistent recycling rather than mixing recyclables with refuse destined for landfilling.

Approximately one third of the farms dispose a portion of their refuse on site. Much of this involves burning paper and cardboard in barrels or on nearby beaches. Three farms use incinerators to burn a portion or all of their waste without the authority of a permit issued pursuant to the *Waste Management Act*. MELP will be requiring sites operating incinerators to upgrade their incinerators to meet the requirements allowing for an exemption from holding a permit, cease the use of the incinerators, or, alternatively, apply for a Waste Management Permit. Farms open burning refuse will be instructed to cease this practice.

Inspections determined that some farms store refuse in an unprotected manner. Refuse similar to that pictured below may be stored for a number of months before being properly disposed. This may lead to leaching and discharge of waste materials into the environment due to the effects of rain and wind.

Photo 1. Fish farm refuse and waste on an open float.

III. SEWAGE TREATMENT AND DISPOSAL

The majority of farms are situated in isolated locations and have employee living quarters to accommodate staff working at the farms. Between three to eight employees may reside at a farm at any given time. The volume of sewage generated at all farms met the criteria established in the Aquaculture Waste Control Regulation that exempts a farm from requiring a permit to discharge sewage.

Sewage treatment and disposal is handled in a variety of ways. Some farms do not generate sewage at the farmsites, or treat their sewage via a tile field (2) or composting toilet (1). Of the remaining farms that discharge to the marine environment, the method of sewage treatment range from no treatment, maceration (2), holding/septic tanks, to secondary treatment (1). There is also significant variance in the depth at which sewage is discharged to the marine environment.

The Aquaculture Waste Control Regulation states that, as a minimum standard, sewage must be treated in a septic tank, and discharged through an outfall at a depth greater than 15 meters below the surface of the water.

Seventy five farms inspected collect and discharge their sewage to the marine environment. Of these, thirty eight had septic tanks, and one had secondary treatment. Fourteen of these farms discharge sewage to a depth greater than 15 meters.

Of the 75 farms that discharge sewage into the marine environment, thirty two of the farms did not treat their sewage in septic tanks. Of these, 9 farms discharged their sewage at a depth greater than 15 meters below the surface of the water.

Observations during the inspections noted that staff at several farms appeared not to be knowledgeable about the farm's sewage treatment and disposal system. Staff familiar with the septic facilities are better able to respond to malfunctions of the systems.

As a follow up, MELP will be advising companies that they must meet the requirements of the Aquaculture Waste Control Regulation pertaining to sewage disposal. Farms will be requested to provide information confirming methods implemented to achieve compliance.

Future inspections will be conducted to determine compliance with the regulations and failure to comply may result in enforcement action.

MELP will consider adopting similar criteria to those in the Municipal Sewage Regulation to address sewage issues. The Municipal Sewage Regulation contains requirements governing septic tanks, signage for outfalls, and environmental impact studies.

IV. STORAGE OF HAZARDOUS MATERIALS

Diesel, gasoline, propane, oil, batteries, antifreeze, acids, therapeutants, disinfectants, and anaesthetics may all be stored at farms. Many of these products are classified as hazardous products or special wastes and pose a risk to the environment if they are not properly handled, stored and disposed.

In order to minimize the risk to the environment these materials must be stored in a manner that prevents spills. Spill containment devices having a volume greater than 110% of the storage container are considered a minimum standard for spill protection. Failure to provide 110% containment for flammable or combustible liquids is contrary to the provisions of the *BC Fire Code* (1998). Given the dynamics created by wave action secondary containment capacity exceeding 110% may be required.

Photo 2. On-site fuel tank capable of 110% fuel storage containment.

There were 70 farms inspected that store diesel fuel, and the inspections revealed that less than half of these farms complied with the requirement for 110% containment. Although secondary containment for a number of the other products and wastes observed during inspections may not be specified in legislation, appropriate containment is one tool in an effective spill prevention program. Inspections determined that secondary containment for the majority of other products/wastes was not being provided.

The majority of farms protect hazardous products and wastes from precipitation and boat/equipment traffic. Observations were made of the handling and transference of these materials, and MELP recommends that measures be taken to protect tanks, lines, and hoses from exposure to severe weather conditions, machinery and other mechanical devices. Fuelling procedures and handling practices are also needed in order to prevent spills from occurring.

Farms use a number of disinfectant products including Ovadine, Vrikon and bleach. The majority of farms dilute the disinfectants prior to discharging the solution to the marine environment as a means of disposal. This practice contravenes the provisions of the *Waste Management Act*. Alternate disposal techniques for disinfectants need to be developed by industry.

Photo 3. Generator Set (and fuel drum supply) without 110% containment.

Approximately 20% of farms had spill contingency plans, and less than half the farms inspected posted the Provincial Emergency Program Spill Reporting number (1-800-663-3456). Failure to immediately report a spill is an offence pursuant to the *Waste Management Act*.

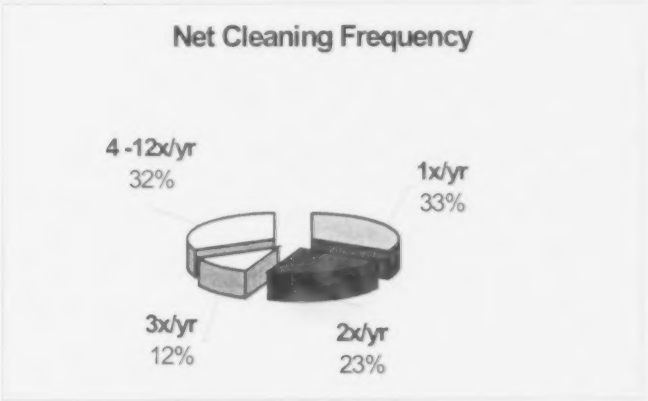
Approximately half of the farms had on-site spill containment and cleanup equipment (booms, pads, sawdust), however, it was unknown as to whether the equipment on hand at some sites would be sufficient to address a potential spill.

Workplace Hazardous Materials Information Sheets (WHMIS) were available at less than half of the sites for diesel and gas. WHMIS were not available for other hazardous materials.

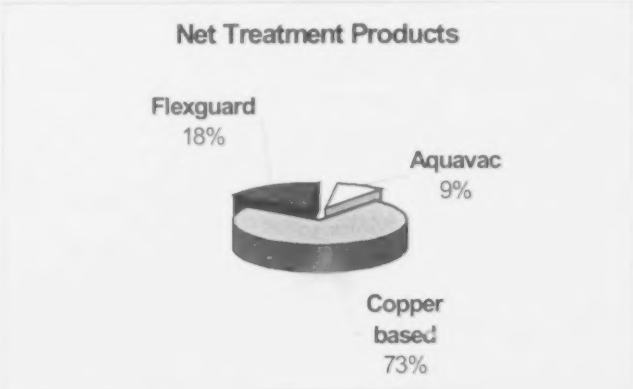
As a result of identifying these issues, the ministry has contacted the BC Salmon Farmers Association and outlined concerns regarding containment/protection, spill contingency plans and spill containment measures.

V. NET CLEANING

Containment and predator nets are cleaned using a variety of methods including drum washing (land or barge), pressure washing and composting (either the ocean floor or on floats). The cleaning process, typically conducted at least once a year, is intended to remove mussels, algae, and other materials that have fouled the nets. As a result of the cleaning process, antifoulant chemicals, a majority of which are copper based, may also be removed from the nets.



Nets are chemically treated in order to improve the longevity and strength, as well as to reduce fouling by marine plants and organisms. The treatment of nets is usually conducted at land-based facilities.



Wastewater generated through the cleaning process can have an elevated biochemical oxygen demand, and when introduced into the aquatic environment, may have a negative impact. Deposits of mussels, algae and other materials removed from the nets smother benthic communities, as well as contribute to the depletion of oxygen in the water column and benthic sediments as they decompose. Deposits of antifoulant chemicals in the marine environment are also harmful to benthic organisms and can have long lasting effects.

Photo 4. On-site net cleaning barge using a drum system. Net cleaning waste is not contained on the barge.

Wastewater and materials removed from the nets during the cleaning process are considered waste pursuant to the *Waste Management Act*. Introduction of these materials into the environment is contrary to the provisions of the *Waste Management Act* and potentially the *Fisheries Act* (Canada). MELP recommends that the practice of composting nets on the ocean floor cease due to the effects upon benthic communities as well as the potential that the nets may not be recovered.

Waste water and material removed from nets must be disposed of in accordance with the *Waste Management Act*. This may entail collecting and treating the wastes by either mobile or land based cleaning facilities prior to final disposal. Preferably, net cleaning would coincide with net strength testing at a land-based facility. Further discussions with industry are required in order to address this issue.

To initiate these discussions, MELP will be advising farms, mobile and land-based net cleaning facilities that appropriate measures must be implemented to manage these wastes. Remediation at specific farms may be required to address impacts upon benthic communities.

VI. FEED HANDLING

The volume of feed stored at aquaculture sites is dependent upon the size of the facility, the type and age of fish on site, and the frequency of delivery. Adequate methods of storage and containment of feed is required in order to prevent the accidental discharge of feed into the environment. In addition to protein and nutrients, fish feed may also contain medications and antibiotics, especially in smolt feed. Inspections determined the majority of farms appropriately store and handle their feed.

Excessive feeding or feed spilled into the marine environment is likely to have a negative impact when it settles and decomposes. Lowered oxygen levels and increases in hydrogen sulphide may result. Non-target species may also be affected by medicated feeds.

The introduction of feed into the marine environment as a result of a spill is contrary to the provisions of the *Waste Management Act* and potentially the *Fisheries Act* (Canada). Eight farms did not store feed in a secure manner to prevent the effects of weather, wildlife access or spillage.

In order to ensure that feed is being managed appropriately, MELP will be advising these farms that appropriate measures must be implemented to minimize the risk of feed spillage or animal attraction.

VII. MORT STORAGE

Inspections determined that the majority of farms adequately store morts to prevent spillage to the environment. Approximately 35% of the farms did not store the morts in animal proof containers designed to prevent access by wildlife. Observations of inadequate storage included totes with improper/no locking devices, totes stored on floats located too close to shore, and a lack of predator prevention devices, e.g, electric stranding/fencing.

Preventing wildlife access to morts lessens the reasons for wildlife to frequent farms, thereby reducing the need to engage in relocation or lethal methods to control wildlife at the farms. The risk of predation on farmed fish is also lessened when wildlife are not attracted to farms.

VIII. MORT DISPOSAL METHOD AND LOCATION

The majority (90%) of farms dispose of their morts at off site approved treatment/disposal facilities. Composting, rendering and ensilaging are the primary methods used to dispose of mortalities and are preferred by MELP given the waste product is transformed into a products with value, e.g., compost.

Six farms (10%) inspected are disposing of their morts at or near their farm sites, utilizing composting, burying, and incinerating. These mort disposal methods are not in compliance with the *Waste Management Act*. To address this non-compliance, the Ministry will require these companies to apply for the appropriate ministry approvals or cease the activity. Site remediation and administrative or enforcement action will be considered on a site-specific basis.

MELP will consider incorporating reporting requirements into the Aquaculture Waste Control Regulation, addressing the volume of morts and the method and location of disposal in order to ensure this information is conveyed to MELP.

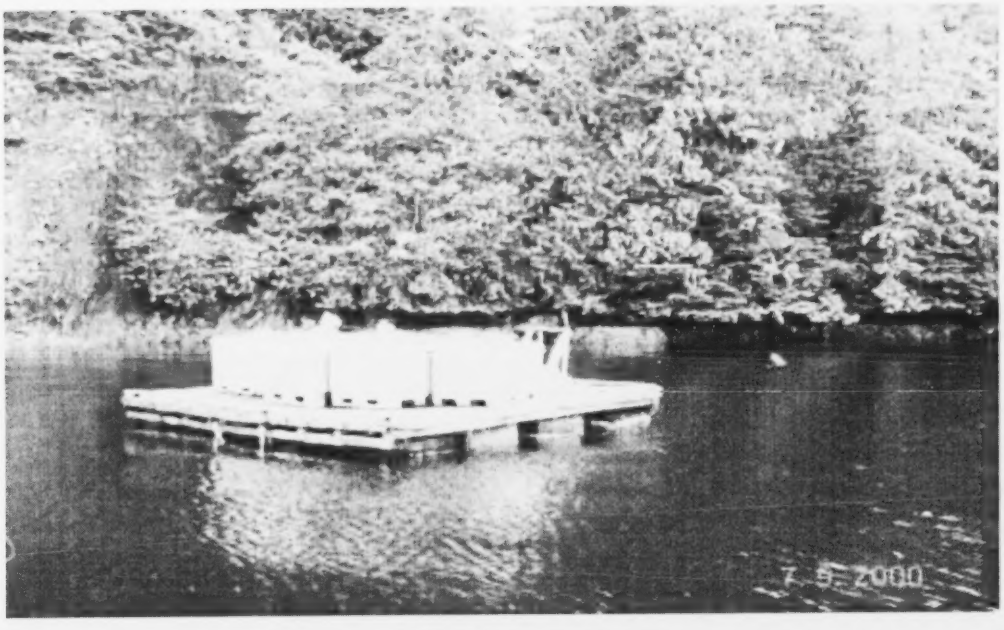


Photo 5. On-site mort storage floats.

IX. HARVESTING PRACTICES

Harvesting of fish occurs on-site at farms, or off-site at processing facilities. On-site harvesting involves stunning and bleeding fish, prior to transporting the fish to a processing facility. Blood water associated with harvesting has a very high biochemical oxygen demand (BOD), and can negatively impact dissolved oxygen levels in the marine environment. The discharge of blood water to the environment also has the potential to impact wild stocks through the transmission of disease. Predators may also be attracted by the discharge of blood water.

Year 2000 Harvest Methods

Species	Harvest Method		TOTAL
	On site	Off site	
Atlantic	17	34	**51**
Chinook	11	4	**15**
Coho	0	6	**6**
Rainbow Trout	0	1	**1**
TOTAL	**28**	**45**	**73**

Blood water and associated materials are considered waste pursuant to the *Waste Management Act*. Introduction of these wastes into the environment is contrary to the provisions of the *Waste Management Act*, and potentially the *Fisheries Act* (Canada).

MELP will be engaging industry and the relevant government agencies in discussions to address this issue. Blood water treatment technology is being used in other jurisdictions. Consideration will be given to selecting the best regulatory approach to address this issue, be it via Waste Management Permits, or inclusion within an amended "Aquaculture Waste Control" Regulation.

X. PREDATOR PREVENTION AND FIREARMS

A variety of wildlife, birds, and marine mammals may be attracted to aquaculture sites. Bear, mink, otter, seals, sea lions, heron, eagle, osprey, marten and crows have all been known to frequent farm sites. The frequency and scope of wildlife and marine mammal interactions at farms is influenced by a number of factors including the location of farms, numbers and size of fish, feeding methodology, waste storage and disposal, and the utilization of predator prevention devices.

Forty eight (48) of the farms inspected stated they experienced interactions with predators. Common predator prevention devices used at farms include predator nets, bird nets/lines, firearms, dogs, electric fencing and lighting.

Thirty eight (38) farms inspected had firearms on site. Of these, 26 farms stated they experienced predator problems, and the firearms were to address these problems. Farm staff were familiar with the requirements of the *Firearms Act* (federal) and the majority of companies were taking steps to ensure compliance with the regulations by 2001.

Two thirds of these farms (17) that possessed firearms for the purpose of predator control, possessed the required hunting/firearms licence, and the Department of Fisheries and Oceans marine mammal predator control licence.

Of the remaining eight farms possessing firearms for predator control, one was not able to produce either a DFO licence or the provincial documentation, three farms were not able to produce a DFO licence, and four farms were unable to produce the required provincial documentation. Enforcement action is being considered for farms determined not to be in compliance with the licensing requirements.

In addition to marine mammals (seals and sea lions), farms also deal with other predators and wildlife. Problem wildlife control must be conducted in accordance with the *Wildlife Act*. Wildlife may be trapped by licensed trappers either during an open season, or during the closed season under permit from the Regional Wildlife Manager. Seven farms were using licensed trappers to address wildlife issues. Farms experiencing problems with wildlife must contact their nearest Conservation Officer Service office in order to initiate the appropriate response.

XI. WATER USE AND LICENSING

Sources including groundwater, precipitation, bottled water, and stream water provide fresh water for fish farms. Freshwater is used for numerous purposes at farms including domestic use in the living quarters. At a limited number of farms, freshwater is used to provide a smolt-lensing site (smolts are placed in a pen that has a freshwater lens on the surface) prior to the smolts being introduced into saltwater pens.

Forty six farms inspected utilize stream water as their primary or secondary source of freshwater. A database search has determined a maximum of 15 farms have a water licence. A level of uncertainty exists as to which farms may possess a water licence, given the tenure numbers and company names provided on MELP's water licenses do not correspond with existing fish farm tenure numbers. MELP will be seeking license verification from these companies, and advising farms to apply for a water licence where required.

MELP recommends a copy of the water licence be available at the farm for future government inspections. Future MELP inspections will assess compliance with the *Water Act*. Non-compliance may result in administrative and enforcement action.

XII. INFORMATION REQUEST AND INTERIM MONITORING PROGRAM

The "Information Request and Interim Monitoring Program" was implemented to collect information necessary to meet government's commitment to protect the environment, and to support the development of performance based standards for farm wastes. Performance based standards for waste discharges are being designed to ensure that there are no detrimental changes to benthic communities within the vicinity of the fish farms.

The following sections describe industry's compliance with the "Information Request and Interim Monitoring Program".

i. Materials Handling Information (Section 1.2)

- Requires monthly recording of information such as the type and volume of feed, additives to feed, total number of fish on site, estimated biomass, and biomass of mortalities.
- Data to be submitted to MELP quarterly, with the first report due June 15, 2000.

As of January 2001, a portion of the information required for the first three quarters had been received for 79% of the farms. Of these, 20% submitted all the required information.

ii. Operating Parameters (Section 2.2)

- Requires the annual recording of information, such as mort disposal, contingency plans, sewage disposal methods, net cleaning methods, the storage, handling and disposal for all chemicals, petroleum and waste products.
- Data is to be submitted annually with the first report due June 15, 2000.

As of June 15, 2000 none of the companies had submitted the required information. As of January 2001, a portion of the information had been received for 78% of the farms. Of these, 13% submitted all the required information.

iii. Site Characteristics And Operational Plan (Section 3.2)

- Requires submission of a cadastral map of the fish farm tenure, site characteristics map, depth and net pen profile, bottom features map, and production plan.
- Data was to be submitted to MELP by June 15, 2000. Changes to site characteristics or operational plans are required to be submitted to MELP on an ongoing basis.

As of June 15, 2000, none of the companies had submitted the required information. By January 2001, a portion of the information had been received for 66% of the farms. Of these, 6% submitted all of the required information.

With regards to the non-compliance with Section 2.2 and 3.2, industry was provided an opportunity to provide their reasons for the lack of compliance. After an assessment of this information, warning letters were issued to each company. The failure to comply was also documented on each company's compliance record.

iv. Current Speed and Direction (SECTION 4.2)

- Requires data to be collected on current speed and direction over a 30-day period, at 15 meters below the surface and 5-10 meters above the ocean floor bottom.
- Data to be submitted to MELP (if already collected) by June 15, 2000. If not previously collected the data is to be submitted by March 15, 2001.
- Compliance with this requirement will be fully assessed subsequent to March 15, 2001. At the time of writing, 25% of the farms had submitted the required information.

v. Environmental Monitoring Program (SECTION 5.2)

- Requires farms to conduct an environmental monitoring program (chemical and physical analysis) on sediment samples using a professional biologist or equivalent professional. Alternatively, where sediment samples could not be collected, a video survey was required.
- Initial data to be submitted to MELP by August 15, 2000.

By January 2001, information had been received for 76% of the farms. Four farms had been exempted from providing the information due to pending relocations. Six farms are submitting the information as part of industry's "Focused Study" initiative. Information has not been received for 27 farms.

COMPLIANCE SUMMARY

Inspections conducted in 2000 by Ministry staff determined the following:

- The majority of farms adequately dispose of farm refuse, with approximately one-third of the farms inadequately disposing (burning/burying) a portion of their wastes (paper, cardboard).

- Approximately 50 % of BC's fish farms have appropriate sewage treatment facilities, but only one quarter of these farms discharge their sewage to a depth greater than 15 meters below the surface as required by regulations;

- The majority of farms stored a variety of hazardous products and special waste. Less than half the farms had appropriate secondary containment for diesel fuel. The majority of farms did not have adequate containment and protection for other hazardous materials on site.

- Waste material and waste water from net cleaning are being discharged to the environment contrary to the provisions of the *Waste Management Act*;

- The majority of farms store and handle feed appropriately to prevent spillage to the environment;

- The majority of farms store mortalities in a manner that prevents spillage to the environment. Approximately two-thirds of the farms store mortalities using methods that prevent access by wildlife. Ninety percent of the active farms dispose of morts off site, and the remaining six farms compost, bury, or incinerate morts on site contrary to the provisions of the *Waste Management Act;*

- Approximately two thirds of the farms stun and bleed fish at off-site processing facilities. The remaining farms discharge blood water to the environment contrary to the provisions of the *Waste Management Act*;

- Of the 26 farms utilizing firearms for marine mammal control at the time of inspection, 17 farms were able to produce both the required provincial documentation and the DFO marine mammal predator control licence;

- Approximately half of the farms inspected utilize water from streams, and the majority of these operations do not hold a water license.

An analysis of data submitted by industry to satisfy the requirements of the "Information Request and Interim Monitoring Program" reveals the following:

- Materials handling information for approximately 80% of the farms has been submitted on a quarterly basis as required. Of these, 20% submitted all the required information;

- Information on operating parameters, site characteristics and operational plans was not received by June 15, 2000 as required, for any of the farm sites. As of January 2001, a portion of the information had been submitted for the majority of sites. 15% of the farms submitted all the required information;

- Current speed and direction information for approximately 35% of the sites has been submitted by March 15, 2001 (required submission date). Of these, 36% have submitted all the required information. Five percent of these farms are exempt from this requirement, and

- Environmental monitoring data/videos has been received for 80% of the farms. Four farms have been exempted from providing the information due to pending relocations. Six farms are submitting the information as part of industry's "Focused Study" initiative. Information has not been received for 27 farms.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the salmon farming industry's compliance with the Ministry of Environment, Lands & Park's regulatory requirements is inconsistent. A number of areas requiring improvement have been identified through MELP's inspection program. Some of the inconsistency may be attributable to the transition presently underway as government and industry work towards the implementation of the government's Salmon Aquaculture Policy framework.

Resolution of some areas of non-compliance will require minimal effort by industry. Further consultation is required between industry and government to determine the most appropriate approach to address a number of specific issues. Submission of information and data is an area that also requires improvement. Timely and accurate submission of data is important. MELP is reviewing data submission methodology to seek improvements and will be discussing this topic with industry and relevant agencies in further detail.

As a next step, the ministry will be providing individual companies with specific information on their compliance performance. Companies will be requested to provide the ministry with a plan that outlines how they intend on achieving compliance, if they are not in a position of attaining compliance within thirty days of receiving notice of the non-compliance. The need to undertake further administrative or enforcement action will be assessed on a company specific basis.

This report represents the first stage of a graduated enforcement approach to deal with non-compliance. The industry as a whole is being made aware of their performance with regulatory requirements. The ministry expects industry to take action to achieve compliance and is prepared to initiate the next stage within a graduated enforcement approach, i.e. initiate administrative and/or enforcement actions to resolve continued non-compliance.

As part of the SAP, the *Aquaculture Waste Control* regulation will be amended to include new performance based standards for farm wastes. During this process, further consideration will be given to determine which of the compliance issues identified in this report are best addressed through amendments to the *Aquaculture Waste Control* regulation.

Evaluation of the BC Salmon Farmers Code of Practice as it relates to MELP's compliance inspections suggests it has potential for developing into an effective tool to assist industry in achieving compliance with the regulatory framework governing the salmon farming industry. Based on the findings of the compliance inspections, MELP will be forwarding recommendations to the BCSFA in order to assist in the development and improvements of the Code. An effective Code that is audited for compliance on a regular basis, with the publicly released results demonstrates industry's commitment to environmental protection.

The following actions are recommended:

- Notify individual companies of specific non-compliance issues and require confirmation when the issue has been resolved, or alternatively a plan to achieve compliance where the non-compliance cannot be resolved within 30 days;
- Initiate investigations for specific non-compliance issues where industry has been previously informed of the need to achieve compliance or where there has been a significant impact upon the environment;

- Consult with industry and Fisheries and Oceans to develop an action plan to assess impacts from net washing operations and to consider remediation options where required;
- Consult with industry and relevant government agencies regarding treatment and disposal options for blood water and disinfectants;
- Consult with industry and relevant government agencies to improve information and data submissions;
- Develop MELP's compliance inspection program for 2001 based upon priorities identified through the inspections conducted in 2000;
- Continue to provide input to the BCSFA regarding their Code and explore opportunities to conduct joint inspections with BCSFA auditors;
- Finalize MELP's compliance strategy addressing MELP' legislated mandate.

LIST OF APPENDICES

Appendix 1 — 2000 MELP Fish Farm Inspection Checksheet

Appendix 2 — Legislation

- Aquaculture Waste Control Reg. 470/88
- Spill Reporting Reg. 263/90

Appendix 3 — Legislation Excerpts from:

- Waste Management Act
- Special Waste Reg. 63/88
- Wildlife Act
- Pesticide Control Act
- British Columbia Fire Code 1998

APPENDIX 1

2000 BC ENVIRONMENT

FISH FARM INSPECTION CHECKSHEET

FISH FARM INSPECTION CHECKSHEET

INSPECTION DATE: _____ FILE: _____

COMPANY: _____

LOCATION: _____

CONTACT: _____ PHONE: _____

GPS COORDINATES:

Net Pens (BCE)*: _____ Farm Data: _____

Residence (BCE): _____

*To be obtained from point as close to centre of net pens as possible.

Site Layout: Provide a sketch of site on Appendix 1 or an up-to-date site layout diagram from farm.

_____

A. STOCKING/INVENTORY

Species	Number of Fish at Site			Harvest Method		Number of Fish Losses Previous 12 Months				
	Smolts	Grow out(1)	Brood stock	Onsite (√)	Offsite (√)	Bloom	Predators	Escapes	Sea Lice	Other *
Atlantic										
Chinook										
Other										

*Describe in "NOTES"
(1) Provide age class:

NOTES:

B. NET MAINTENANCE

Inspection Frequency			Cleaning Frequency (times/year)	Treatment Frequency (times/year)	Treatment Product
Visual	Diver	Other			

What are the size(s) of net pens currently in use? _____

NOTES:

C. ENVIRONMENTAL MONITORING

Parameter	(√)	Frequency	Records Maintained (Y/N)
Temperature			
DO			
Salinity			
Plankton			
Other			

Were gas bubbles observed coming to the surface: ☐ yes ☐ no

Have plankton blooms been encountered at the site in the previous 12 months? ☐ Yes ☐ no

What is potable water source? _____

NOTES

D. FEED STORAGE AND DELIVERY

Feed storage and delivery		Feed system		TV Monitors (Y/N)	Secure Storage (Y/N)
Max amount	Frequency	Manual (√)	Automatic (√)		

If automated feed system utilized, is there a method of controlling feed rate? _____

Description of automatic feed system:

NOTES:

E. MORT DISPOSAL

☐ On-site disposal ☐ Off-site disposal

Method	(√)	Carrier	Disposal Company	Disposal Location
Ensilaging				
Rendering				
Composting				
Ocean dumping				
Burying				
Approved landfill				
Other (describe)				

Is there evidence of spillage to the environment from storage of morts? ☐ Yes ☐ no

Are morts stored in animal proof containers to prevent animals accessing morts? ☐ Yes ☐ no

NOTES:

F. PREDATORS:

Predator attraction problems at site: ☐ yes ☐ no

Species	Number Destroyed	Number Relocated	Disposal Method	Authorization		Agency Report To
				Destroy (Y/N)	Dispose (Y/N)	
Bear						
Mink						
Otter						
Seal						
Sea Lion						
Blue Heron						
Eagle						
Other (describe)						

Are food attractants/cooking facilities managed to prevent attraction of wildlife? ☐ Yes ☐ no

Predator prevention devices observed in use at time of inspection:

☐ Acoustic deterrent devices ☐ Predator ☐ Dogs
☐ Firearms ☐ Bird Nets ☐ Electric fencing
☐ Night lights ☐ Other

Other methods: _____

Have the services of a trapper been used in the last 12 months? ☐ Yes ☐ no

If yes, name of trapper: _____

Are firearms stored on site? ☐ Yes ☐ no

Person responsible for storage and use (name): _____

Licences	Y/N
Hunting	
Firearms	
Possession acquisition certificate	

NOTES:

G. SEWAGE DISPOSAL

Method	Size (m^3)	# of People	Outfall	
			Depth	Posted (Y/N)

Methods: septic tank treatment, untreated, other (describe)

NOTES:

H. REFUSE DISPOSAL

Method	(√)	Location	Storage		Contractor
			Days	Wildlife Attractant (Y/N)	
Buried					
Approved landfill					
Incinerated					
Open burning					
Removal					
Other (describe)					

Incinerator information:

☐ Auxiliary fuel ☐ Refractory lined ☐ Secondary combustion model

Is there evidence of waste from the farm being discharged to the environment? ☐ Yes ☐ No

If yes, describe: _____

_____

NOTES: (ash disposal, wildlife attraction, etc.)

I. HAZARDOUS MATERIAL/SPECIAL WASTE STORAGE

Type	Volume	% Spill Containment	Spill Clean-up Equipment			Contingency Plans (Y/N)	WHMIS (Y/N)
			Pads	Booms	Others		
Fuel (diesel)							
Gasoline							
Waste oil							
Antifreeze							
Batteries							
Formic acid							
Therapeutants							
Disinfectants							
Anaesthetics							
Antifoulants							
Other							

Spill reporting phone number posted on-site (1-800-663-3456): ☐ yes ☐ no

Are the hazardous materials protected from precipitation? ☐ yes ☐ no

Are fuel valves and hoses protected from heavy traffic impacts? ☐ yes ☐ no

Are the hazardous materials stored in a secure manner? ☐ yes ☐ no

GENERAL COMMENTS:

Ministry staff conducting inspection (print): _____

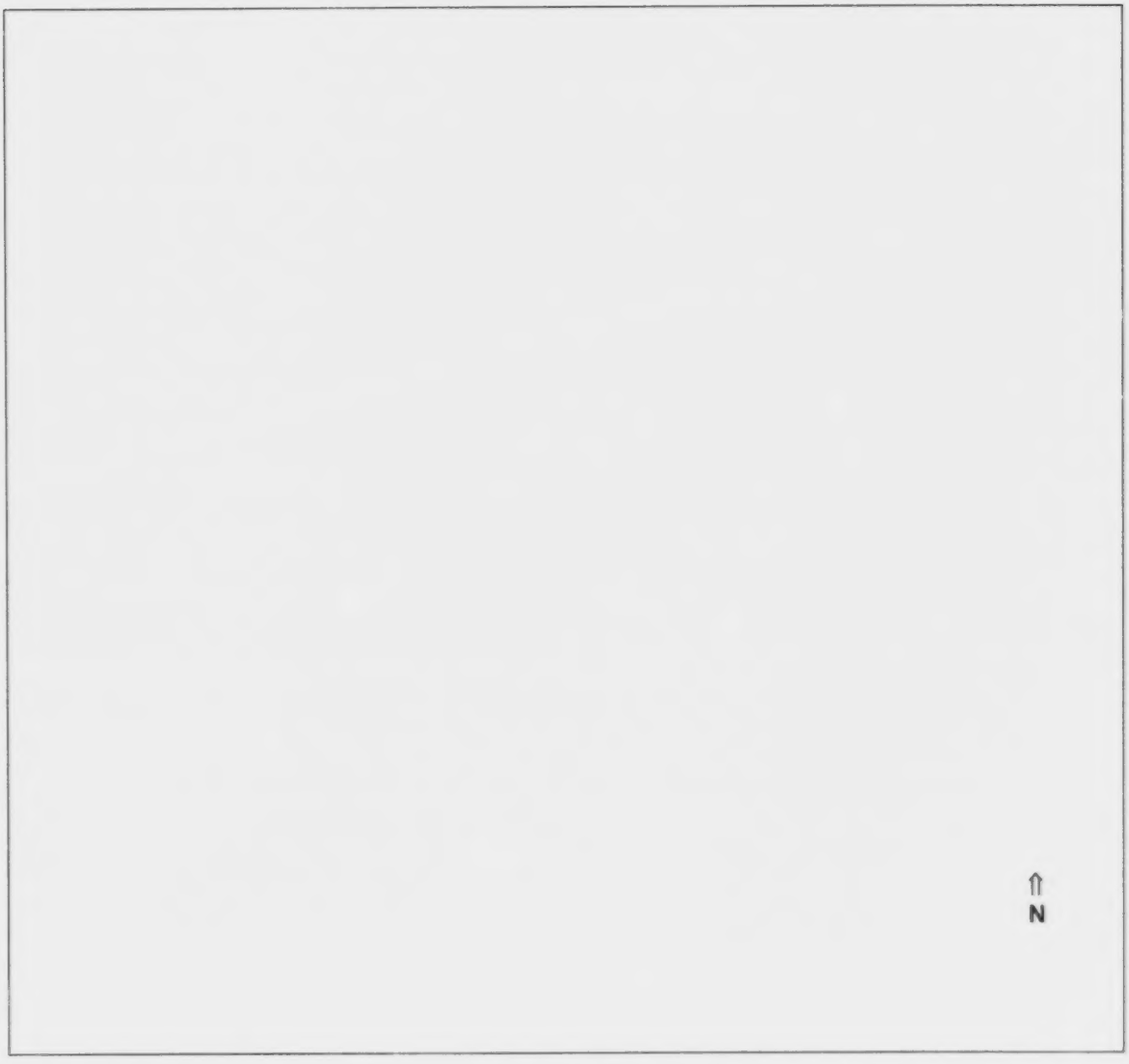
Company representative signature: _____

NOTE: Signature acknowledges representative provided a source of information for completion of checklist.

SITE LAYOUT DIAGRAM

Provide a sketch of layout of farm, outbuildings and residence, net pen layout, etc.

IF MONITORING OCCURRED, INDICATE DIRECTION OF SAMPLING TRANSECT. INDICATE NET PEN GPS LOCATION



Are any buildings, structures, equipment stored on upland areas adjacent to the farm?
☐ **yes** ☐ **no**

APPENDIX 2

LEGISLATION

Aquaculture Waste Control Regulation

Waste Management Act
B.C. Reg. 470/88
O.C. 2164/88
Deposited December 2, 1988

Interpretation
1. In this regulation

"dry weight" means the gravimetric determination of the total residue left in a vessel after drying to a constant weight at a temperature of 103° to 105° C;

"mortalities" means finfish that have died from disease, plankton bloom, stress or other similar causes and that are not marketed for human consumption;

"finfish netcage aquaculture operation" means a finfish netcage aquaculture operation located in tidal salt water at a site that is leased or licensed under section 35 or 36 of the Land Act;

"operator" means a person who owns a finfish netcage aquaculture operation and includes a person authorized by the owner to act as the operator.

Exemptions
2. A person who carries out a class of operation, activity, industry or work referred to in section 3 is exempt from the requirement to hold a permit or approval under the Waste Management Act in respect of the class if he meets the conditions and circumstances set out in section 3 in respect of the class and if he provides to the Regional Waste Manager, on his request, information that allows him to determine the existence and extent of the discharge of waste.

Classes
3. The classes of operations, activities, industries or works referred to in section 2 are:

(a) The introduction of finfish feed or finfish faeces to tidal salt water from a finfish netcage aquaculture operation where

(i) the total feed usage does not exceed 630 tonnes dry weight per year,

(ii) the use, storage and disposal of materials and wastes on or off the finfish netcage aquaculture site is carried out in a manner that minimizes odour, risk of spillage and attraction of and impact on wildlife,

(iii) the operator complies with a monitoring program, stipulated by the manager that allows the manager to determine

(A) the existence and extent of environmental impact caused by the operation,

(B) whether finfish aquaculture is likely to result in any alteration, disruption or destruction of wildlife, finfish, shellfish or their habitat,

(C) whether discharges of sewage are disposed of in a manner that causes pollution, and

(D) whether therapeutants, anesthetics, disinfectants, pesticides, wood preservatives, antifouling agents and other similar materials are stored and applied in a manner that causes pollution,

(iv) the operator complies with any requests by the manager for information in addition to the monitoring program under subparagraph (iii) for the purpose of allowing the manager to determine the matters set out in subparagraph (iii) (A) to (D),

(v) the operator notifies the manager regarding changes to the aquaculture operation that may affect the kind or quantity of the wastes disposed of or discharged,

(vi) pollution is caused by the aquaculture operation, and the operator, as soon as possible in the circumstances, reports the pollution to the manager and takes appropriate action, as directed by the manager, to ameliorate the pollution and prevent its recurrence, and

(vii) the operator prepares a contingency plan which documents procedures to be followed during a major fish kill, including the method of disposal of mortalities, and obtains the manager's approval to the plan;

(b) the introduction from a finfish netcage operation to tidal salt water of treated domestic sewage that is

(i) produced in a quantity that is less than 2.5 m3 per day,

(ii) produced from premises located on the foreshore adjacent to tidal saltwater, or on tidal saltwater,

(iii) collected and treated in a septic tank that provides at least 2 days retention time for the sewage,

(iv) discharged at a depth greater than 15 m below hydrographic chart datum within the boundaries of the operation, and

(v) located more than 125 m from commercial or recreational shellfish resources.

Offence and penalty

4. (1) Every person who

(a) makes, participates in, assents to or acquiesces in the making of false or deceptive statements in a return, record or answer filed or made as required by or under this regulation,

(b) omits, or assents to or acquiesces in the omission of, entries in records required by or under this regulation, or

(c) in any manner evades or attempts to evade compliance with this regulation commits an offence and, in addition to any penalty otherwise provided, is liable on summary conviction to a penalty not exceeding $2 000.

(2) No person commits an offence under subsection (1) (a) or (b) if he did not know that the statement or entry was false or deceptive and, in the exercise of reasonable diligence, could not have known that the statement or entry was false or deceptive.

[Provisions of the Waste Management Act relevant to the enactment of this regulation: Section 35]

Spill Reporting Regulation

Waste Management Act
B.C. Reg. 263/90
O.C. 1223/90
Deposited August 10, 1990
[includes amendments up to B.C. Reg. 166/93]

Interpretation

1. In this regulation

"Act" means the Waste Management Act;

"PEP" means the Provincial Emergency Program of the Ministry of Attorney General;

"Spill" means a release or discharge except as authorized or allowed by

(a) Section 3 of the Act,

(b) A waste management plan approved by the minister or under the Act, or

(c) A permit, approval or order under the Act

Into the environment of a substance in an amount equal to or greater than the amount listed in Column 2 of the Schedule of this regulation for that substance;

"Substance" means a substance, product, material or other thing listed in Column 1 of the Schedule to this regulation.

Report

2. (1) A person who had possession, charge or control of a substance immediately before its spill shall immediately report the spill to PEP by telephoning 1-800-663-3456 or 387-5956 as provided in section 10 (5) of the Act or, where it is not practical to report to PEP within a reasonable time, to the local police or nearest detachment of the Royal Canadian Mounted Police.

(2) Where it appears to a person observing a spill that a report under subsection (1) has not been made, he or she shall make the report referred to in this section.

(3) A report under this section shall include, to the extent practical,

(a) the reporting person's name and telephone number,

(b) the name and telephone number of the person who caused the spill,

(c) the location and time of the spill,

(d) the type and quantity of the substance spilled,

(e) the cause and effect of the spill,

(f) details of action taken or proposed to comply with section 3,

(g) a description of the spill location and of the area surrounding the spill,

(h) the details of further action contemplated or required,

(i) the names of agencies on the scene, and

(j) the names of other persons or agencies advised concerning the spill.

Further action

3. Where a spill occurs, the person who immediately before the spill had possession, charge or control of the spilled substance shall take all reasonable and practical action, having due regard for the safety of the public and of himself or herself, to stop, contain and minimize the effects of the spill.

SCHEDULE: REPORTABLE LEVELS FOR CERTAIN SUBSTANCES
[am. B.C. Reg.166/93]
1. In this Schedule
"Federal Regulations" means the Transportation of Dangerous Goods Regulations made under the Transportation of Dangerous Goods Act (Canada);
"Special Waste Regulation" means B.C. Reg. 63/88.

Item	Column 1 Substance spilled	Column 2 Specified amount
1.	Explosives of Class 1 as defined in section 3.9 of the Federal Regulations	any
2.	Flammable gases, other than natural gas, of Division 1 of Class 2 as defined in section 3.11 (a) of the Federal Regulations	10 kg, if the spill results from equipment failure, error or deliberate action or inaction
3.	Non-flammable gases of Division 2 of Class 2 as defined in section 3.11 (d) of the Federal Regulations	10 kg, where spill results from equipment failure, error or deliberate action or inaction
4.	Poisonous gases of Division 3 of Class 2 as defined in section 3.11 (b) of the Federal Regulations	5 kg, where spill results from equipment failure, error or deliberate action or inaction
5.	Corrosive gases of Division 4 of Class 2 as defined in section 3.11 (c) of the Federal Regulations	5 kg, where spill results from equipment failure, error or deliberate action or inaction
6.	Flammable liquids of Class 3 as defined in section 3.12 of the Federal Regulations	100 l
7.	Flammable solids of Class 4 as defined in section 3.15 of the Federal Regulations	25 kg
8.	Products or substances that are oxidizing substances of Division 1 of Class 5 as defined in section 3.17 (a) and 3.18 (a) of the Federal Regulations	50 kg
9.	Products or substances that are organic compounds that contain the bivalent "-0-0-" structure of Division 2 of Class 5 as defined in sections 3.17 (b) and 3.18 (b) of the Federal Regulations	1 kg
10.	Products or substances that are poisons of Division 1 of Class 6 as defined in section 3.19 (a) to (e) and 1.20 (a) of the Federal Regulations	5 kg
11.	Organisms that are infectious or that	any

	are reasonably believed to be infectious and the toxins of these organisms as defined in sections 3.19 (f) and 3.20 (b) of the Federal Regulations	
12.	Radioactive materials of Class 7 as defined by section 3.24 of the Federal Regulations	All discharges or a radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
13.	Products or substances of Class 8 as defined by section 3.25 of the Federal Regulations	5 kg
14.	Miscellaneous products or substances of Division 1 of Class 9 as defined by section 3.27 (1) and (2) (a) of the Federal Regulations	50 kg
15.	Miscellaneous products or substances of Division 2 of Class 9 as defined in section 3.27 (1) and (2) (b) of the Federal Regulations	1 kg
16.	Miscellaneous products or substances of Division 3 of Class 9 as defined in section 3.27 (1) and (2) (c) of the Federal Regulations	5 kg
17.	Waste asbestos as defined in section 1 of the Special Waste Regulation	50 kg
18.	Waste oil as defined in section 1 of the Special Waste Regulation	100 l
19.	Waste containing a pest control product as defined in section 1 of the Special Waste Regulation	5 kg
20.	A substance not covered by items 1 to 19 that can cause pollution	200 kg
21.	Natural gas	10 kg, if there is a breakage in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas

[Provisions of the Waste Management Act relevant to the enactment of this regulation: sections 10, 35]

APPENDIX 3

LEGISLATION EXCERPTS

WASTE MANAGEMENT ACT

CHAPTER 482

[Updated to November 2, 1999]

Part 2 — Prohibitions and Permits

Waste disposal — strict liability

3 (1) For the purposes of this section, the conduct of an industry, trade or business includes the operation by any person of facilities or vehicles for the collection, storage, treatment, handling, transportation, discharge, destruction or other disposal of waste.

(2) subject to subsection (5), a person must not, in the course of conducting an industry, trade or business, introduce or cause or allow waste to be introduced into the environment.

(3) subject to subsection (5), a person must not introduce or cause or allow to be introduced into the environment, waste produced by any prescribed activity or operation.

(4) subject to subsection (5), a person must not introduce waste into the environment in such a manner or quantity as to cause pollution.

(5) nothing in this section or in a regulation made under subsection (3) prohibits any of the following:

(a) the disposition of waste in compliance with a valid and subsisting permit, approval, order or regulation, or with a waste management plan approved by the minister;

(b) the discharge into the air of an air contaminant from an incinerator operated under authority, licence or permit of a municipality;

(c) the disposition of human remains in crematoria in compliance with the *Cemetery and Funeral Services Act;*

(d) the discharge of air contaminants authorized by a bylaw made under section 24 (3) (d);

(e) the burning of leaves, foliage, weeds, crops or stubble for domestic or agricultural purposes or in compliance with the *Weed Control Act;*

(f) the use of pesticides or biocides for agricultural, domestic or forestry purposes in compliance with the *Pesticide Control Act,* the *Pest Control Products Act* (Canada) and any other Act and regulation governing their use;

(g) burning if

(i) the burning is for land clearing, land grading or tilling,
(ii) the volume of material burned does not exceed in the aggregate 10 m^3 per hectare per month,
(iii) the duration of any burning is less than 24 hours,
(iv) the land on which the burning takes place is a part of or contiguous with the land from which the material originates, and
(v) no material other than dry wood, paper, cardboard or diesel fuel oil is used as fuel to start, assist or enhance the burning, without the specific permission of a manager;

(h) fires set or controlled by a person

(i) acting under an order of a local assistant, as defined in the *Fire Services Act*, if the local assistant orders the fire for training purposes, or

(ii) Carrying out

(A) fire control and suppression operations under section 89 of the *Forest Practices Code of British Columbia Act*, or

(B) a resource management open fire, as that term is defined in the Forest Fire Prevention and Suppression Regulation, B.C. Reg. 169/95, if the person carries out the fire in accordance with the *Forest Practices Code of British Columbia Act* and the regulations made under that Act;

(i) emissions from steam powered or internal combustion engines in compliance, if applicable, with the *Motor Vehicle Act* and regulations;

(j) emission into the air of soil particles or grit in the course of agriculture or horticulture;

(k) the disposal of waste by a person other than a municipality

(i) by means of a system of waste disposal lawfully operated by a municipality or other public authority, and

(ii) in compliance with the rules and regulations that apply to that system;

(l) emission of an air contaminant from combustion of wood or fossil fuels used solely for the purpose of comfort heating of domestic, institutional or commercial buildings;

(m) emission of an air contaminant from food preparation in

(i) Residential premises, or

(ii) Retail food outlets.

(6) nothing in subsection (5) (b) or (l) authorizes the use of an incinerator or domestic, institutional or commercial heating equipment for the purpose of destroying special waste by means of combustion.

(7) in subsection (5) (m):

"Residential premises" includes hospitals, clinics, logging camps, factory and office canteens and other similar premises;
"Retail food outlets" means
(a) restaurants, hotels, motels and similar premises, and
(b) premises in which food is prepared and sold by retail sale, such as
(i) exclusively retail bakeries, and
(ii) premises selling take out food.

Special wastes — confinement

4 (1) a person, who produces, stores, transports, handles, treats, deals with, processes or owns a special waste must keep the special waste confined in accordance with the regulations.

(2) except to the extent expressly authorized by a permit, approval, order, waste management plan or the regulations, a person must not release a special waste from the confinement required by subsection (1).

(3) if a special waste is released from or escapes from the confinement required by subsection (1), it is, for the purposes of this Act, deemed to have been introduced into the environment.

Spill prevention and reporting

12 (1) In this section, **"polluting substance"** means any substance, whether gaseous, liquid or solid, that could, in the opinion of the minister, substantially impair the usefulness of land, water or air if it were to escape into the air, or were spilled on or were to escape onto any land or into any body of water.

(2) If a person has possession, charge or control of any polluting substance, the minister may, if the minister considers it reasonable and necessary to lessen the risk of an escape or spill of the substance, order that person

(a) to undertake investigations, tests, surveys and any other action the minister considers necessary to determine the magnitude of the risk and to report the results to the minister,

(b) to prepare, in accordance with the minister's directions, a contingency plan containing information the minister requires, and

(c) to construct, alter or acquire at the person's expense any works, or carry out at the person's expense any measures that the minister considers reasonable and necessary to prevent or abate an escape or spill of the substance.

(3) If an escape or spill occurs of a substance for which a contingency plan was prepared, a manager may order any person having possession, charge or control of the substance at the time it escaped or was spilled, or the person who prepared the plan or all of them to put the contingency plan into operation at their expense.

(4) The minister may order a person who prepared a contingency plan to test the plan.

(5) If a polluting substance escapes or is spilled or waste is introduced into the environment other than as allowed or authorized by

(a) section 3,

(b) a bylaw under section 24,

(c) a waste management plan approved by the minister, or

(d) a permit, approval or order,

The person who had possession, charge or control of the substance or waste immediately before the escape, spill or introduction must, immediately after he or she learns of the escape, spill or introduction, report the escape, spill or introduction in accordance with the regulations.

(6) In a prosecution for a contravention of subsection (5), it is presumed that the accused knew of the escape, spill or introduction at the time of the alleged contravention and the burden of proving that he or she did not know is on the accused.

(7) The minister may amend or cancel an order made under this section.

Special Waste Regulation
Waste Management Act
B.C. Reg. 63/88
Deposited February 18, 1988
O.C. 268/88 effective April 1, 1988
[includes amendments up to B.C. Reg. 52/95]

Storage and transportation

50. (1) For the purposes of this section, materials are compatible with one another when, under normal conditions of storage or transport,

(a) special waste will not be released into the environment,

(b) no heat, gas, corrosive or toxic substance is given off, and

(c) the effectiveness of the packaging of the special waste is not reduced.

(2) Any person who

(a) transports special waste, or

(b) is required to store special waste in a container,

Shall use a container that is designed, constructed or lined with materials that are compatible with the waste.

(3) A person who uses a container to store or transport special waste shall

(a) keep the container closed at all material times during storage or transport, and

(b) not open, handle, store or transport the container in a manner which may cause it to leak or rupture.

(4) No person shall store or transport in the same container

(a) two or more special wastes which are not compatible, or

(b) a special waste, which is not compatible with any substance, placed in the container.

(5) No person shall place special waste in an unwashed container that previously held a material which is incompatible with that special waste.

(6) No person shall store or transport special waste in a small inside container within a labpack unless

(a) The container is enclosed within an open head metal labpack which

(i) has a tight fitting gasketted lid, and

(ii) is lined with a plastic bag not less than 4 mil thick,

(b) The container is not leaking and is securely sealed,

(c) Any container of liquid special waste is put inside a clear plastic bag not less than 4 mil thick which is sealed before being placed inside the labpack,

(d) The waste within the container is identifiable either by

(i) the original label on the container, or

(ii) a new label applied to the container or plastic bag

Stating the correct shipping name as defined in the Federal Regulations,

(e) Sufficient inert packing material is used to fill all spaces between the inside containers so as to prevent accidental breakage and leakage, and

(f) A list of the contents and size of each container is

(i) retained for inspection by an officer while the special waste is being stored,

(ii) attached to the manifest while the special waste is being transported, and

(iii) attached, by the consignee, to the copies of the manifest which are sent to the appropriate authorities under the Federal Regulations.

(7) No person shall use a container which contains residues of special waste to hold, store or transport food, animal feed or a product which may directly become part of the human food chain.

(8) No person shall store or transport special waste unless it is placed in a container or otherwise secured so that under normal conditions of storage or transport the special waste does not leak or escape into the environment.

[am. B.C. Reg. 132/92, s. 30.]

WILDLIFE ACT

CHAPTER 488

Hunting and firearm licences

11 (1) A person commits an offence if the person hunts wildlife or carries a firearm unless

(a) the person holds

(i) a hunting licence issued to him or her under this Act, if the person hunts,

(ii) any limited entry hunting authorization required by regulation, if the person hunts,

(iii) a firearm licence issued to him or her under this Act, if the person carries a firearm, and

(iv) any other licence required by regulation, if the person hunts or carries a firearm, or

(b) the person, if he or she is under 19 years of age, complies with subsection (5) and

(i) holds a hunting licence, or

(ii) his or her parent or guardian holds a hunting licence on his or her behalf.

(2) A person must not issue a hunting licence for a person under 10 years of age.

(3) A person must not issue a firearm licence to a person under 19 years of age.

(4) A person under 19 years of age commits an offence if the person carries a firearm unless the person is accompanied by and under the close personal supervision of a person who

(a) is 19 years of age or older, and

(b) holds, or is exempted from holding, a hunting licence or firearm licence.

(5) A person under 19 years of age commits an offence if the person hunts unless the person is accompanied by and under the close personal supervision of a person who

(a) is 19 years of age or older, and

(b) holds, or is exempted from holding, a hunting licence.

(6) Despite subsections (1) and (4), a person may possess a firearm without a hunting licence or firearm licence in any of the following circumstances:

(a) aboard a boat used as his or her home;

(b) on property owned or occupied by the person or by his or her parent or guardian;

(c) while transporting a firearm as part of a move of household effects of his or her primary residence;

(d) if he or she is not a resident, while travelling in British Columbia in a motor vehicle on a highway as defined in the *Highway Act*.

(7) A person must not issue a trapping licence to a person unless the applicant is a citizen of Canada or a permanent resident of Canada.

(8) A person commits an offence if the person traps fur bearing animals unless he or she holds a trapping licence.

(9) Subsections (1) (a) (i), (iii) and (iv) and (8) do not apply to an Indian residing in British Columbia.

WATER ACT

CHAPTER 483

Offences

41 (1) A person commits an offence if the person does any of the following:

(a) willfully hinders, interrupts or causes or procures to be hindered or interrupted, a licensee or his or her managers, contractors, servants, agents, workers or any of them, in the lawful exercise of a right granted under this Act or the regulations or under a licence or approval;

(b) without lawful authority, willfully destroys, damages or interferes with the works of a licensee, a person who has obtained an approval or a person who has constructed the works in accordance with the regulations;

(c) opens or closes without authority a hydrant used for fire protection, or obstructs free access to a hydrant stop cock or hydrant accessory, or damages a hydrant stop cock or hydrant accessory;

(d) lays or causes to be laid a pipe, or constructs or causes to be constructed a ditch or other conduit to connect with the works of a licensee without authority from the comptroller, engineer or the licensee;

(e) molests, interferes with, delays, obstructs or otherwise impedes the comptroller or an engineer, water bailiff or other officer in the discharge or performance of a duty or the exercise of an authority under this Act;

(f) destroys, injures or tampers with
(i) works, or
(ii) a gauge, weir, measuring device, structure, appliance, cable, boat, instrument or tool
belonging to or placed in position by an applicant, licensee or official of Canada or of British Columbia;

(g) places, maintains or makes use of an obstruction in the channel of a stream without authority;

(h) engages in the business of operating works to carry water for others without holding a licence or other authority issued in that behalf under this or a former Act;

(i) willfully interferes with a headgate, ditch or controlling works that an engineer, officer or water bailiff has regulated;

(j) willfully destroys a notice posted by an applicant, engineer, officer or water bailiff;

(k) constructs, maintains, operates or uses works without authority;

(l) puts into a stream any sawdust, timber, tailings, gravel, refuse, carcass or other thing or substance after having been ordered by the engineer or water recorder not to do so;

(m) diverts water from a stream without authority;

(n) diverts more water from a stream than the person is lawfully entitled to divert;

(o) diverts water that the person does not use beneficially;

(p) uses water when the person is not lawfully entitled to do so;

(q) uses water or permits water to be used on the person's land during a time he or she is ordered to cease the diversion of water or after his or her works have been closed or ordered closed;

(r) willfully contravenes this Act or an order of the comptroller or engineer, or neglects to do an act or thing required to be done by the person under this Act or under an order of the comptroller or engineer;

(s) makes changes in and about a stream without lawful authority;

(t) breaches a term or condition of a licence, an approval or the regulations;

(u) carries, supplies, conveys or transports water diverted from a stream without being authorized to divert, extract, use or store water from that stream, unless acting as agent for a person so authorized;

(v) contravenes section 4.

(w) [Not in force.]

(x) contravenes section 4 (3) of the *Fish Protection Act*;

(y) [Not in force.]

(z) contravenes an order under section 41.1 or 41.2.

PESTICIDE CONTROL ACT

[RSBC 1996] CHAPTER 360

[Updated to October 31, 1997]

Restrictions

7 (1) A person must not apply, store, transport or possess a pesticide

(a) for a purpose other than that for which it is sold,

(b) in a manner other than that prescribed, or

(c) if the manner of handling the pesticide is not prescribed, in a manner other than that recommended in the instructions that accompany the pesticide, or in a publication, authorized by the minister, with instructions that have not been superseded.

(2) A person must not do any of the following:

(a) dispose of a pesticide other than under the regulations or the *Waste Management Act;*

(b) wash or submerge in a body of water equipment or a container used to prepare, mix or apply a pesticide;

(c) draw water into a container used to contain, prepare, mix or apply a pesticide, directly from a body of water or from an irrigation system by means of equipment unless an air gap is maintained between the equipment and the liquid in the container to avoid back siphonage and the equipment meets prescribed conditions.

The British Columbia Fire Code 1998

Office of the Fire Commissioner
Ministry of Municipal Affairs

B.C. Fire Code Committee 1998

4.1.6.Spill Control and Drainage Systems

4.1.6.1.Spill Control 1) A spill of flammable liquids or combustible liquids, including water used for fire fighting purposes, shall be prevented from flowing outside of the spill area and from reaching waterways, sewer systems and potable water sources by

a) constructing a non-combustible barrier of sufficient height to contain the spill, or
b) grading the site or sloping the floor to divert the spill to a drainage system conforming to Article 4.1.6.2 (See Appendix A.)

2) When barriers required in Sentence (1) are provided to contain accidental spillage from aboveground storage tanks, they shall conform to the requirements for secondary containment in Subsection first 4.3.7.

4.1.6.2.Drainage Systems

1) A drainage system referred to in Clause 4.1.6.1.(1)(b) shall

a) terminate at a location where such spill will not create a fire hazard or any risk to public health or safety, and
b) direct the spill away from buildings, means of egress, fire department access roadways, or valves controlling the flow of flammable liquids or combustible liquids or water supplies for fire fighting.

2) Closed drainage systems shall be equipped with a trap. (See Appendix A.)

4.1.6.3.Spills and Leaks

1) Maintenance and operating procedures shall be established to prevent the escape of flammable liquids or combustible liquids to areas where they would create a fire or explosion hazard.

2) Except as provided in Sentence (3), all reasonable steps shall be taken to recover escaped liquid and to remove or treat the contaminated soil.

3) Liquid spilled or leaked shall be
a) flushed to a location conforming to Article 4.1.6.2., or
b) removed with the aid of an absorbent conforming to Sentence (4), and
i) deposited in a receptacle conforming to Article 2.4.1.3., or
ii) disposed of in a manner that does not create a fire or explosion hazard.

4) An absorbent required in Sentence (3) shall
a) be non-combustible, or
b) conform to ULC/ORD-C410A, "Absorbents for Flammable and Combustible Liquids."

4.1.8.Handling of Flammable and Combustible Liquids

4.1.8.1.Containers and Storage Tanks

1) All flammable liquids and combustible liquids shall be stored in containers conforming to Subsection first 4.2.3. or in storage tanks conforming to Subsection first 4.3.1.

2) Containers and storage tanks for flammable liquids or combustible liquids shall be kept closed when not in use.

4.3.7.Secondary Containment for Aboveground Storage Tanks

4.3.7.1.General

1) The area surrounding a storage tank or group of storage tanks shall be designed to accommodate accidental spillage in conformance with Subsection first 4.1.6.

2) Where barriers described in Sentence 4.1.6.1.(1) are provided to contain accidental spillage from aboveground storage tanks, they shall conform to the requirements for secondary containment in this Subsection first.

3) A storage tank conforming to Sentence 4.3.7.4.(2) shall be considered as conforming to this Subsection first provided it is used and maintained in conformance with Articles 4.3.7.8. and 4.3.7.9.

4.3.7.3.Capacity (See A-4.1.6.1.(1) in Appendix A.)

1) Except as permitted in Sentence (3), a secondary containment for a single storage tank shall have a volumetric capacity of not less than 110% of the capacity of the tank.

2) Except as permitted in Sentence (3), a secondary containment for more than one storage tank shall have a volumetric capacity of not less than the sum of

a) the capacity of the largest storage tank located in the contained space, and
b) 10% of the greater of
    i) the capacity specified in Clause (a), or
    ii) the aggregate capacity of all other storage tanks located in the contained space.

3) When the secondary containment is designed to prevent the entry of precipitation and water used for fire fighting purposes into the contained space, it shall have a volumetric capacity of not less than the capacity of the largest storage tank located in the contained space.

4.3.7.8.Drainage

1) Liquids, debris and precipitation shall not accumulate in the contained space created by the secondary containment.

2) Provisions shall be made for removing liquid from the secondary containment in conformance with Subsection first 4.1.6.

3) Controls for the liquid removal system required in Sentence (2) shall be
a) normally closed,
b) accessible under fire exposure conditions, and
c) located so they can be operated from outside the contained space.

4.3.7.9.Use of Secondary Containment

1) The contained space created by a secondary containment shall not be used for storage purposes.